CLAIMS

The invention is claimed as follows:

1. A device transfer method comprising the steps of:

covering a plurality of devices which have been formed on a substrate with a resin layer;

cutting said resin layer to obtain resin buried devices each of which contains at least one of said devices; and

peeling said resin buried devices from said substrate and transferring them to a device transfer body.

2. The device transfer method according to claim 1, wherein a plurality of said resin buried devices are selectively, simultaneously peeled from said substrate and are transferred to said device transfer body with a pitch larger than an array pitch of said devices on said substrate.

3. A device transfer method according to claim 2, wherein said resin buried devices are selectively peeled from said substrate by selectively irradiating interfaces between said substrate and said resin buried devices with laser beams directed from said substrate side.

4. A device transfer method according to claim 3, wherein a polyimide layer is interposed between said substrate and said resin buried devices.

5. A device transfer method comprising the steps of:

covering a plurality of devices, which have been formed on a substrate, with a resin layer;

forming electrodes in said resin layer in such a manner that said electrodes are connected to said devices;

cutting said resin layer, to obtain resin buried devices each containing at least one of said devices; and

peeling said resin buried devices from said substrate and transferring them to a device transfer body.

6. The device transfer method according to claim 5, wherein a plurality of said resin buried devices are selectively, simultaneously peeled from said substrate and are transferred to said device transfer body with a pitch larger than an array pitch of said devices on said substrate.

7. A device transfer method according to claim 6, wherein said resin buried devices are selectively peeled from said substrate by selectively irradiating interfaces between said substrate and said resin buried devices with laser beams directed from said substrate side.

8. A device transfer method according to claim 7, wherein a polyimide layer is interposed between said substrate and said resin buried devices.

9. A device transfer method according to claim 5, wherein said devices are light emitting devices;

said device transfer body has a wiring layer; and

said electrodes are formed in said resin layer in such a manner that said electrodes are connected to said light emitting devices and then said resin layer is cut to form said resin buried devices, and said resin buried devices are transferred to said device transfer body in such a manner that said electrodes are connected to said wiring layer and said resin buried devices are arrayed in rows and columns.

10. A device transfer method according to claim 5, wherein connection holes are formed in said resin layer in such a manner as to reach said devices by laser beams, and said electrodes are connected to said devices via said connection holes.

11. A device transfer method according to claim 5, wherein said electrodes are each formed with a planar dimension substantially corresponding to a planar dimension of each of said resin buried devices, and said resin layer is cut by laser beams with said electrodes taken as a mask, to obtain said resin buried devices.

12. A device transfer method comprising the steps of:

covering a plurality of devices formed on a device formation substrate with a first resin layer;

collectively peeling said devices together with said first resin layer from said device formation substrate, and transferring them to a first supporting board;

cutting said first resin layer on said first supporting board, to make said devices separable from each other;

peeling said devices covered with said first resin layer from said first supporting board, and transferring them to a second supporting board;

covering said devices thus transferred to said second supporting board with a second resin layer;

forming electrodes in said first and second resin layers in such a manner that said electrodes are connected to said devices;

cutting said second resin layer, to obtain resin buried devices each containing at least one of said devices; and

peeling said resin buried devices from said second supporting board, and transferring them to a device transfer body.

13. A device transfer method according to claim 12, wherein a plurality of said devices covered with said first resin layer are selectively, simultaneously peeled from said first supporting board, and are transferred to said second supporting board with a pitch larger than an array pitch of said devices on said first supporting board; and

a plurality of said resin buried devices are selectively, simultaneously peeled from said second supporting board, and are transferred to said device transfer body with a pitch larger than an array pitch of said resin buried devices on said second supporting board.

14. A device transfer method according to claim 13, wherein said devices covered with said first resin layer are selectively peeled from said first supporting board by selectively irradiating interfaces between said first supporting board and said devices covered with said first resin layer with laser beams directed from said first supporting board side; and

said resin buried devices are selectively peeled from said second supporting board by selectively irradiating interfaces between said second supporting board and said resin buried devices with laser beams having come from said second supporting board side.

15. A device transfer method according to claim 14, wherein a polyimide layer is interposed between said first supporting board and said devices covered with said first resin layer, and a polyimide layer is interposed between said second supporting board and said resin buried devices.

16. A device transfer method according to claim 12, wherein said devices are light emitting devices;

said device transfer body has a wiring layer; and

said electrodes are formed in said resin layer in a manner such that said electrodes are connected to said light emitting devices and wherein said resin layer is cut to form said resin buried devices, and said resin buried devices are transferred to said device transfer body in a manner such that said electrodes are connected to said wiring layer and said resin buried devices are arrayed in rows and columns.

17. A device transfer method according to claim 12, wherein connection holes are formed in said first and second resin layers in a manner to reach said devices by laser beams, and said electrodes are connected to said devices via said connection holes.

18. A device transfer method according to claim 12, wherein said electrodes are each formed with a planar dimension substantially corresponding to a planar dimension of each of said resin buried devices, and said second resin layer is cut by laser beams with said electrodes taken as a mask, to obtain said resin buried devices.

19. A device transfer method according to claim 12, wherein said devices are light emitting devices obtained by growing a crystal of a gallium nitride based semiconductor on said device formation substrate;

said device formation substrate has a light transmissive characteristic; and

interfaces between said device formation substrate and said light emitting devices are irradiated with laser beams directed from said device formation substrate side, and said light emitting devices are peeled from said device formation substrate by decomposition of said gallium nitride based semiconductor at said interfaces into nitrogen and gallium.

20. A panel comprising:

an array of resin buried devices each containing at least one semiconductor device;

wherein a plurality of said devices are formed on a substrate and are covered with a resin layer, said resin layer is cut to obtain said resin buried devices each containing at least one of said devices, and said resin buried devices are peeled from said substrate and are transferred to said panel.

21. A panel according to claim 17, wherein said resin buried devices are arrayed with a pitch larger than an array pitch of said devices on said substrate.

22. A panel according to claim 17, wherein said devices are light emitting devices, and said resin buried devices are arrayed in rows and columns with pitches corresponding to pixel pitches.